Family Background, Contemporary Constraints, and Fertility in Egypt

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Abstract

Long-standing fertility theory posits that fertility is determined in part by ideals and desires formed during childhood. Family background factors, especially characteristics of the family of origin (such as number of siblings), are often neglected in research on fertility in developing countries, perhaps because the DHS offers limited measurement of such factors. This paper analyzes extensive information collected on a sub-sample (n=3286) of respondents in the 2003 DHS in Egypt who were re-interviewed in 2004. The analysis examines the effects of childhood family and regional fertility context on lifetime fertility goals and outcomes of Egyptian women. Total fertility rates in childhood place, number of siblings, and perceptions of the quality-quantity tradeoff are used to capture childhood family fertility setting. The results show that early experience plays a significant role in determining total fertility outcomes and desires. These results hold even after controlling for the standard battery of women and family characteristics (region and type of place of residence, educational attainment, wealth).

1 Introduction

Long-standing fertility theory posits that fertility is determined in part by ideals and desires formed during childhood. The extent to which these are expressed in realized fertility is a function of constraints operating during the reproductive years, such as economic considerations, social effects and biological factors. Family background factors, especially characteristics of the family of origin (such as number of siblings and regional culture), are often neglected in research on fertility in contemporary developing countries. One main reason for the lack of empirical work on such effects is because the Demographic and Health Surveys (DHS) offer limited measurement of such factors. Nevertheless, in the developed world, including the United States, where the literature on fertility preferences is extensive due to the availability of rich data, empirical research has examined effects of family background on fertility behavior. A particular focus of some recent papers has been immigrants and individuals from different ethnic backgrounds.

The main objective of this paper is to examine the effects of childhood family and regional fertility context on Egyptian women's fertility behavior. To the best of our knowledge, these effects have not yet been investigated in Egypt. Fertility in Egypt is at a transitional stage in which a close consideration of inter-relations among women's fertility ideals, desires/preferences, and realized fertility has assumed some significance. While the total fertility rate (TFR: births per lifetime for the average woman) remains above three births per woman (3.25 in the 2003 Demographic and Health Survey [DHS]), it has continued to progress downward. More significantly, the wanted fertility rate has dropped to about 2.5 births per woman, and a significant segment of the population expresses a desire to have just two births. It is the growth of this segment of the population that signals the possibility of replacement-level fertility in Egypt. Widespread acceptance of a goal of two births (or less) would seem at the moment a pre-condition for replacement-level fertility in Egypt, given early and nearly universal marriage and the relative unavailability of sterilization and induced abortion as means of birth control.

With this in mind, the Population Council's Cairo office has recently collected national survey data, under the Stalled Fertility Transition project (SFT), that explores in depth the fertility desires of women of reproductive-age. The SFT project provides extensive information collected on a sub-sample of 3286 respondents interviewed in the 2003 Egypt Interim Demographic and Health Survey (EIDHS) who were currently married in 2004. Our early analysis of the this data has shown that although few women perceive much gain from having a large number of children and most acknowledge the advantages of having just two children, many women either desire to have more than two children or appear to regard such an outcome as perfectly acceptable. Using the SFT data we will examine the effect of childhood regional and family context on each of lifetime fertility goals and lifetime fertility outcome of Egyptian women. Survey data collected in 2003-04 afford an unusual opportunity to examine in our analysis effects of a variety of factors hypothesized to bear on fertility decisions in Egypt.

The paper is organized in five sections. Following this introduction, Section 2 briefly discusses the theoretical and empirical literature on fertility preferences. This section also briefly reviews the limited literature on the inter-linkage between family background/culture and fertility decision. Section 3 presents the data, variables and methods used in the analysis

of this paper. Section 4 presents the regression results. Concluding remarks are presented in Section Five.

2 Background

2.1 Fertility intentions and Preferences

A wide empirical literature that has accumulated over many decades has considered the inter-relations among family size intentions, preferences, ideals and actual fertility outcomes. Recent contributions include Van Peer (2002), DaVanzo et al. (2003), Quesnel-Vallee and Morgan (2003). Although these subjective fertility measures are often quite similar, empirical research over several decades indicates that they are typically not identical. The key conceptual difference between fertility desires (or preferences) and fertility intentions is that *desires* reflect individuals' views of the preferred number of children over the life course, whereas *intentions* are statements regarding the individuals' planned fertility choices. Hence, fertility intentions are closely related to, and difficult to distinguish from, fertility *expectations*. Yet it is well recognized that fertility outcomes can differ substantially from fertility *intentions* in the presence of constraints such as social influence, economic considerations, and biological factors (Engelhardt 2004; Heiland, Prskawetz and Sanderson 2005).

Early theories of fertility adopted a static perspective on the formation of family size ideals and desires: individuals' fertility aspirations are determined early in life and remain constant throughout the reproductive career (e.g. Becker 1960, Willis 1973, Ryder 1973). From this theory it follows that fertility ideals and desires ought to be strongly associated with cultural background and other determinants of fertility norms in one's family of origin, and with early life-course experience, such as traditional beliefs and the number of siblings (Heiland, Prskawetz and Sanderson 2005).

A broader dynamic perspective on fertility preferences views childbearing decisions as a sequential and conditional process, since preferences may vary over the individual life cycle as a result of life-course events, constraints and social interactions (Modell, Furstenberg and Hershburg 1976, Lee 1980, Van de Kaa 2001, Kohler 2001). Hence, according to this dynamic view factors that potentially lead to adjustment of preferences are primarily individual education and employment history at the micro-level and institutional and social/cultural changes at the macro-level. Also, under this prospective fertility intentions must be examined at different parities, since fertility planes may change after each new birth (Engelhardt 2004).

In the following we empirically investigate which of the above two theoretical views better describes fertility behavior in Egypt. Our main objective is to examine whether childhood family context plays a role in shaping women's lifetime fertility goals and lifetime fertility outcome. As discussed in the next section, empirical work on such effects is somewhat limited, and to our knowledge there has been no testing in Egypt or other Arab societies.

2.2 Previous Evidence

The idea that "culture" – loosely defined to include a constellation of values and norms -- influences economic outcomes goes back to the beginning of the 20th century. Recently, Cole et al. (1992) developed a model of endogenous social norms and their affects on savings and growth. Bisin and Verdier (2000) developed a model of the family and endogenous cultural transmission. More recently, Fernandez and Folgi (2005a) argue that preferences and beliefs have a systematic component that depends on an individual's heritage. This systematic component reflects past interactions of preferences, beliefs, markets and institutions. They term this systematic component *culture*. This *culture* component may lead to differences in observed outcomes -- even if individuals later share the same markets and institutional settings, different ethnic groups possess distinct norms and beliefs, which continue to be transmitted across generations in the family.

The role of culture, as specified in this manner, has been empirically investigated in numerous pieces of economic research. Reimers (1985) used ethnic dummies to explain the effect of ethnicity on women's labor force participation. Landes (1998) argues that culture plays an important role in explaining the differences in economic growth across countries.[1] Antecol (2000) used home-country variables to examine the effect of male and female labor force participation at country of ancestry on the inter-ethnic gender gap in labor force participation in the US. Fernandez et al. (2004) show that an important factor in explaining whether a man's wife works is whether his own mother worked when he was growing up. Their explanation for this association is that the man's mother's decision to work or not is influenced by her beliefs about women's role; these are transmitted to her son, and then influence household decisions related to his wife's employment.

Turning to fertility outcomes, there has also been empirical research linking childhood family context and adult fertility. One portion of this literature has highlighted ethnicity and nationality. Blau (1992) investigates whether the fertility behavior of first-generation immigrant women differs from that of native women who were born in the US, finding that TFR in home-country significantly explains the fertility behavior of immigrant women in 1970 and 1980. Guinnane, Moeheling, and O Grada (2002) studied Irish fertility behavior in the US in 1910. The authors show that although Irish fertility rates in the US were lower than fertility rates in Ireland, Irish immigrants had larger families than native-born couples in the US.

Giuliano (2004) uses home-country dummies to show that Western European second-generation immigrants to the US tend to replicate the family living arrangements of their country of origin. Fernandez and Folgi (2005b) attempts to disentangle the effects of experience from those of culture on women's preferences over family size. The authors used past values of the TFR in the woman's country of ancestry, of second-generation immigrants born in the US, as a proxy for culture. In addition, they consider the woman's number of siblings as an important element of her direct family experience. The results show that, even after controlling for woman's characteristics, culture and family childhood experience have a significant effect on the number of children ever born.

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[1] See Weil (2004) for a review of research on culture and growth.

3 Data and Methods

This paper primarily analyzes survey data collected under the "Stalled Fertility Transition" [SFT] project, which has been a collaboration between the Population Council (Cairo) and the Cairo Demographic Centre.[2] The principal objective of the SFT project was to explore in depth, and from multiple perspectives, attitudes towards childbearing. The SFT questionnaire included extensive investigation of fertility desires and family-size attitudes, and batteries of items about the advantages and disadvantages of having children, and more specifically the advantages and disadvantages of having two children only. There is explicit questioning about the child quantity-quality tradeoff in relation to number of siblings while growing up. Other items link childbearing to women's roles in the household and marriage. For more detail about this survey and descriptive analysis of the data, see Casterline and Roushdy (forthcoming).

The SFT re-interviewed a nationally representative sub-sample of 3286 currently married women aged 15-44 who had previously been interviewed in the 2003 EIDHS (el-Zanaty and Way 2004). The present analysis draws almost entirely on information gathered in the SFT interview, although all information obtained from these women in the EIDHS is also available. The data collection occurred during the period April–June 2004, with the elapsed time between the EIDHS and SFT interviews being eleven months on average. About 83% of the women selected for re-interview were successfully interviewed.

3.1 Fertility Preferences and Aspiration

Fertility decision has been measured in the literature using several instruments, depending on the scope of the study and data availability. Within the DHS universe, the standard measures of the demand for children are (i) the ideal number of children, and (ii) the desire to have another child. Beside the women's responses available from EIDHS, the SFT survey also included several batteries of questions on ideal family size, preferences, and intentions about desired family size. In this paper, we use number of children ever born and desired family size to study lifetime fertility outcomes and goals.

The item on the desire for another child at the time of the SFT interview, combined with the follow-up item on the additional number desired (among those desiring more), is used in this paper to measure fertility desires. The existing literature indicates that this measure is more valid and reliable than the item on the ideal number of children (for a concise review, see Bongaarts 1994; Casterline and el-Zeini 2005a). In the SFT, women who were certain or rather likely to have a/another child were asked, "How many (more) children do you want to have?" if the woman was not pregnant at the time of the SFT interview, and "How many (more) children do you want to have after the child you are expecting?" if the woman was pregnant.[3] In the analysis, the current number of children of women who did not want more children is taken as the desired family size.[4] While for women wanting a/another children,

[2] Financial support for the data collection was provided by the USAID and CIDA.

[3] Some error may arise if women thought the question was asking about immediate fertility planes and not about planes until end of their childbearing years (Bongaarts 1990). However, this can be substantially avoided through detailed probing, as that encourage in the SFT questionnaire.

[4] Using the actual realized number of children, to measure total desired fertility, implicitly assumes that there are no unwanted births among present children. We are aware that this is quite a strong assumption in

the desired family size is taken as the sum of current number of children and the number of more children wanted. This is generally considered most accurate measure and is often used in fertility survey reports in developing countries (Bongarts 1999, Engelhardt 2004).[5] Table 1 and 2 show the mean number of children ever born and mean desired number of children by number of living children and selected background characteristics.

3.2 Childhood Experience and Control Variables

This paper primarily attempts to empirically isolate the effect of childhood family context from that of recent markets, institutions, and personal experience effects on Egyptian women's fertility behavior. The EDHS include a set of question that asks about the woman's childhood place. One question asks about the governorate which the woman lived in most of the time until age 12, and the other question asks whether she was living in the urban or the rural part of that governorate. On the other hand, among items included in the SFT questionnaire is a set that asks about the woman's family of origin –the number of siblings a woman had when growing up and her perception of the social and economic effects of this family size. The pattern of responses (see Casterline and Roushdy 2005) suggests that a substantial fraction of women recognized the quality-quantity tradeoff. Among the women with three or more siblings, more than 60 percent believed that their families' economic situation would have been worse if they had more siblings, and about 40 percent believed that with fewer siblings their schooling would have been better (although the more common answer was that their schooling would have been the same).

Following Fernandez and Folgi (2005b) and Blau (1992), we use the TFR at place of childhood at age 12 and number of siblings to capture childhood setting. We also use the woman's perception of the quantity-quality tradeoff while growing up with her siblings to capture her early childhood experience with family size dynamics (see the Appendix for the construction of these variables). The TFR data at the governorate level by urban rural residence are obtained from the 1960 - 1996 Egyptian censuses and Egypt Human Development Reports. We match the TFR data with our SFT women sample by the year in which the woman was around age 12.

An important question that faces our analysis is whether our childhood family context variables are truly capturing fertility beliefs and attitudes faced during childhood or whether they are instead proxying for direct personal experience. Thus, in the analysis we principally need to explore whether childhood family settings continue to play the same role in determining fertility, even after controlling for women and household characteristics (see Fernandez and Folgi (2005b) for a discussion on the effect of direct personal experience). Accordingly, in the multivariate analysis we control for a standard set of women's background characteristics. We include a set of dummies for the woman's age group (30-35 is the omitted category). The woman's and her husband's education are represented by two

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the Egyptian society. As we continue to analyze the SFT data, we will attempt to estimate models that account for this drawback.

[5]Although this type of intentions/desire measure is generally considered more accurate than many others fertility decisions measurements, it should be interpreted with caution, because fertility intentions remain predictions about the future and thus may contain substantially uncertainty. (See Engelhardt 2004.)

sets of dummy variables (no education (omitted), at least some primary or secondary education, completed secondary or higher education).

To control for the actual economic status of the household, for example its level of income or wealth, we included among the background characteristics in this analysis dummies for the household falling into each of the 3 terciles of the so-called "household wealth index" (low (omitted), middle and upper). This index is derived via principal components from a set of consumer durables possessed by the household.[6] The wealth index has been shown to be highly consistent, in several distinct settings, with other measures of the long-term economic status of the household (e.g. permanent income) but more weakly correlated with short-term income and consumption expenditure. Additionally, two dummies for current place of residence are included among the set of background characteristics: a dummy for households in Upper Egypt governorates and the other for households in urban areas. Finally, two indicators are also included to examine the effect on fertility of the woman's attitudes about the costs and benefits of children and about gender roles. The SFT items used in the construction of these two variables are listed in the Appendix.

4 Models and Results

Following the discussion in Section 2 and 3, the demand for children can be estimated as a function of: childhood family context, perceived benefits of children in old age, and attitudes towards gender roles, with controls for potentially confounding background characteristics (age, place of residence, schooling, and wealth).

We need to account for the fact that the desired number of children and the number of child ever born are not normally distributed continuous variables. In this case it is always preferable to use a count data model rather than ordinary least squares. We could either use a negative binomial or a Poisson model. The negative binomial model allows for greater variation than the true Poisson distribution. Examination of the distributions of the desired number of children and child ever born variables reveals evidence of overdispersion, i.e. the conditional variance exceeds the conditional mean in our sample. Thus we opt here for a negative binomial model. This overdispersion is captured in the negative binomial model by an ancillary parameter, which when set to zero yields a true Poisson distribution.

The regression equations consist entirely of additive effects; in analyses not reported here, we have examined selective interactive effects (specifically between number of siblings and the quantity-quality tradeoff variables; and between the household wealth index and indicators of economic stress/anxiety available in SFT), but none of these proved informative. Finally, since the key variables among the explanatory variable (the childhood family context proxies) varies by the childhood governorate and urban/rural area, all standard errors are corrected for clustering at the governorate-urban/rural level.

The regression results are presented in Tables 3-6. Table 3 shows the regression results for child ever born. In the first column, the number of children ever born is regressed on the childhood family context variables. The coefficient for the TFR at time and place of childhood is positive and significant, thus indicating that women who grew up in areas of

[6] For details on the calculation of this wealth index, see El-Zanaty and Way (2004).

higher fertility tend to have more children. Similarly, those with more siblings have more children.

The second and third columns of Table 3 present equations that include variables that might confound the estimated effect of childhood context on fertility. Among these variables are the region and type of place of residence at the time of the survey, and the level of education of the woman and her husband. Women and husbands with at least secondary education tend to have fewer children. As is commonly observed in analyses of Egyptian data, women in Upper Egypt desire larger families and women in urban areas desire smaller families, even with controls for schooling and, more importantly, the various attitudinal variables (perceived benefits of children in old-age and gender roles) through which effects of region and type of place might operate. The effect of the childhood family context variables remains significant after controlling for all women's characteristics; however, their magnitude declines.

The third column presents the fullest equation. The two attitudinal indicators— child benefit in old age and acceptance of more egalitarian attitudes about gender role—have significant effects in the expected direction. The coefficient for perceived child benefit in old-age is substantial in magnitude and highly significant, consistent with the argument that perceptions of children's benefits weigh heavily in the formulation of family-size desires. Once again, the effect of childhood family context remains significant but decreases in magnitude.

Table 4 explores whether the effect of childhood context on fertility differs according to women's age and duration since first marriage. The table includes four separate regressions: the first regression is for women who are younger than 35 years old; the second for women 35 or older; the third for women of shorter marital duration (less than 10 years); and the final regression is for women of long marital duration (10 years or more). In all models the effects of the childhood context variables remain significant; however, the effects of these variables is lower (in both magnitude and statistical significance) for older women (age 35+) and for women of longer marital duration (10+). In contrast, the effect of women's background characteristics and place of residence is larger for older women and those of longer marital duration.

The regressions of women's fertility desires are presented in Tables 5 and 6. In all model specifications of Table 5, the coefficients of the childhood family variables are significant. However, their significance level and magnitude substantially decreases upon addition of the other socioeconomic variables and the attitudinal indicators to the equation. Table 6 shows that, similar to the child ever born regression results, the fertility desires of older women and those with longer marital duration, as compared to younger women and those with shorter marital duration, seem to be less determined by the woman's childhood context and more determined by factors such as education, household wealth and current place of residence.

Overall, our results suggest that there are forces towards childhood fertility context (at both the family and geographic level) replicating itself in adult fertility, even after controlling for background characteristics. However, as a woman ages her life-course experience seem to dilute this effect of childhood context. Accordingly, given these results we lean towards not accepting a static model of the formulation of fertility desires in Egypt. Nevertheless, to determine whether the dynamic view better describes the Egyptian women fertility behavior,

we need a rich long panel data to be able to observe women's fertility preferences and planes at different parities.

5 Summary and Concluding Remarks

Although the economic literature has long stressed the importance of incentives for human behavior, only recently there has been rigorous research showing that incentives operate within a framework given by culture or norms and beliefs (Fernandez and Folgi 2005b). This paper aims at contributing to this literature, by demonstrating that childhood family context affects Egyptian's women fertility behavior. We have examined cross-sectional correlates of children ever born and desired total fertility, through analysis of recently-collected national survey data. These data are distinctive in containing indicators of many hypothesized determinants of fertility demand that are not customarily measured in national surveys (Egypt DHS).

We used TFR in childhood place, number of siblings, and perceptions of the quality-quantity tradeoff while growing up with that number of siblings to capture childhood family fertility setting. We find that this early experience plays a significant role in determining total fertility outcomes and desires. These results hold even after controlling for a standard battery of background characteristics (region and type of place of residence, educational attainment, wealth). Additionally, two factors hypothesized to influence family-size desires have been investigated: perceived benefits of children in old age, and gender role attitudes. There two variables show quite significant effects.

Table 1 Mean child ever born, by number of living children[a] and selected background characteristics

Background characteristics	Number of living children[a]			
	0-1	2	3+	Total
Total	0.81	2.01	4.36	3.16
Urban-rural residence				
Urban	0.83	1.98	3.96	2.88
Rural	0.80	2.05	4.63	3.36
Place of residence				
Urban governorates	0.79	1.95	3.88	2.76
Lower Egypt	0.86	2.06	4.11	3.01
Upper Egypt	0.74	2.01	4.83	3.55
Women Education				
No Education	0.71	2.07	4.99	4.01
Primary, incomplete or complete	0.79	2.20	4.45	3.51
Secondary completed or higher	0.85	1.96	3.55	2.41
Husband Education				
No Education	0.75	2.16	5.11	4.16
Primary, incomplete or complete	0.78	2.06	4.47	3.35
Secondary completed or higher	0.84	1.95	3.72	2.55
Wealth index				
Lowest quintile	0.86	2.14	5.02	4.00
Second – Fourth quintiles	0.80	1.97	4.56	3.26
Fifth quintile	0.80	2.01	3.78	2.71
Age				
Age 15-19	0.75	1.68	3.00	1.03
Age 20-24	0.89	1.91	2.99	1.70
Age 25-29	0.84	2.01	3.57	2.57
Age 30-34	0.53	2.12	4.01	3.31
Age 35-39	0.61	2.16	4.71	4.21
Age 40-44	0.87	2.28	5.25	4.72
Marital Duration				
<10 years	0.83	1.94	3.14	1.90
10+ years	0.64	2.23	4.72	4.28
Number of women	595	779	1912	3286

[a] Current pregnancies are counted as a living child.

Table 2 Mean desired number of children, by number of living children[a] and selected background characteristics

Background characteristics	Number of living children[a]			
	0-1	2	3+	Total
Total	2.32	2.44	4.18	3.44
Urban-rural residence				
Urban	2.21	2.29	3.84	3.14
Rural	2.39	2.58	4.42	3.66
Place of residence				
Urban governorates	2.29	2.19	3.76	3.02
Lower Egypt	2.12	2.38	3.93	3.22
Upper Egypt	2.59	2.74	4.64	3.92
Women Education				
No Education	2.30	2.44	4.63	4.02
Primary, incomplete or complete	2.24	2.42	4.23	3.62
Secondary completed or higher	2.33	2.44	3.62	2.95
Husband Education				
No Education	1.98	2.44	4.69	4.06
Primary, incomplete or complete	2.23	2.39	4.22	3.50
Secondary completed or higher	2.44	2.47	3.78	3.10
Wealth index				
Lowest quintile	2.57	2.60	4.72	4.09
Second – Third quintiles	2.38	2.49	4.32	3.55
Fourth – Fifth quintile	2.20	2.34	3.73	3.06
Age				
Age 15-19	2.72	2.76	3.67	2.75
Age 20-24	2.43	2.59	3.59	2.71
Age 25-29	2.22	2.51	3.62	3.00
Age 30-34	2.11	2.29	3.91	3.41
Age 35-39	1.79	2.11	4.41	4.02
Age 40-44	1.38	2.06	4.74	4.30
Marital Duration				
<10 years	2.37	2.53	3.40	2.72
10+ years	1.83	2.18	4.40	4.06
Number of women	595	779	1912	3286

[a] Current pregnancies are counted as a living child.

Table 3 Total Children Ever Born: Regression Results

Variable		(1)	(2)	(3)
Childhood family context				
TFR		0.495***	0.135***	0.124***
Number of siblings		0.013**	0.009**	0.009**
Quantity-Quality: More siblings worse economic status		-0.032	-0.017	-0.011
Quantity-Quality: Fewer siblings better schooling		0.019	0.022	0.024
Women Age (Omitted= age 30-34)				
Age 15-19		-1.015***	-1.253***	-1.262***
Age 20-24		-0.469***	-0.634***	-0.644***
Age 25-29		-0.298***	-0.268***	-0.268***
Age 35-39		0.243***	0.192***	0.194***
Age 40-44		0.372***	0.311***	0.314***
Women Education (Omitted= No Education)				
Woman educational attainment: at least some primary			-0.004	-0.001
Woman educational attainment: secondary or higher			-0.174***	-0.159***
Husband education (Omitted= No Education)				
Husband educational attainment: at least some primary			-0.036	-0.033
Husband educational attainment: secondary or higher			-0.086**	-0.080**
Household characteristics				
Household wealth (Omitted= Lower)	Middle		-0.062**	-0.061**
	Upper		-0.185***	-0.174***
Upper Egypt			0.152***	0.147***
Urban area			-0.081***	-0.067**
Attitudes about child benefit and gender role				
Child support in old age				0.036***
Attitudes towards social change in gender roles				-0.016*
Constant		0.350***	1.147***	1.177***
Number of women		*3279*	*3279*	*3279*

*** p< 0.001 ** p< 0.05 * p<0.10

Table 4 Total Children Ever Born: Regression Results by Age and Marital Status

Variable		Age < 35	Age 35+	Marital Duration <10	Marital Duration 10+
Childhood family context					
TFR		0.714***	0.116*	0.190***	0.089**
Number of siblings		0.009	0.011*	0.016**	0.008*
Quantity-Quality: More siblings worse economic status		-0.027	-0.014	0.01	-0.03
Quantity-Quality: Fewer siblings better schooling		0.032	0.031	0.039	0.018
Women Age (Omitted= age 30-34)					
Age 15-19				-0.807***	
Age 20-24				-0.251***	-0.323***
Age 25-29				-0.053	-0.147***
Age 35-39				-0.194	0.126***
Age 40-44				-0.419	0.236***
Women Education (Omitted= No Education)					
Woman educational attainment: at least some primary		0.018	-0.023	0.078	-0.02
Woman educational attainment: secondary or higher		-0.153***	-0.208***	0.035	-0.183***
Husband education (Omitted= No Education)					
Husband educational attainment: at least some primary		-0.081*	-0.022	-0.023	-0.034
Husband educational attainment: secondary or higher		-0.133***	-0.089	-0.061	-0.058*
Household characteristics					
Household wealth (Omitted= Lower)	Middle	-0.072*	-0.03	-0.097*	-0.049**
	Upper	-0.084*	-0.159**	-0.169***	-0.162***
Upper Egypt		-0.179***	0.185***	0.016	0.167***
Urban area		0.023	-0.108**	-0.007	-0.073**
Attitudes about child benefit and gender role					
Child support in old age		0.023	0.038***	0.022*	0.035**
Attitudes towards social change in gender roles		0.001	-0.018	-0.001	-0.017*
Constant		0.006	1.422***	0.531***	1.339***
Number of women		*2135*	*1144*	*1532*	*1747*

*** p< 0.001 ** p< 0.05 * p<0.10

Table 5 Desired Total Fertility: Regression Results

Variable		(1)	(2)	(3)
Childhood family context				
TFR		0.354***	0.057*	0.048+
Number of siblings		0.012***	0.009***	0.009***
Quantity-Quality: More siblings worse economic status		-0.042*	-0.032*	-0.027
Quantity-Quality: Fewer siblings better schooling		-0.013	-0.009	-0.008
Women Age (Omitted= age 30-34)				
Age 15-19		-0.102*	-0.308***	-0.316***
Age 20-24		-0.098***	-0.245***	-0.253***
Age 25-29		-0.165***	-0.146***	-0.144***
Age 35-39		0.155***	0.123***	0.124***
Age 40-44		0.233***	0.198***	0.199***
Women Education (Omitted= No Education)				
Woman educational attainment: at least some primary			-0.001	0.002
Woman educational attainment: secondary or higher			-0.109***	-0.099***
Husband education (Omitted= No Education)				
Husband educational attainment: at least some primary			-0.018	-0.015
Husband educational attainment: secondary or higher			-0.021	-0.018
Household characteristics				
Household wealth (Omitted= Lower)	Middle		-0.038**	-0.037**
	Upper		-0.120***	-0.112***
Upper Egypt			0.166***	0.165***
Urban area			-0.071***	-0.061***
Attitudes about child benefit and gender role				
Child support in old age				0.025**
Attitudes towards social change in gender roles				-0.025***
Constant		0.646***	1.229***	1.319***
Number of women		**3279**	**3279**	**3279**

*** p< 0.001 ** p< 0.05 * p<0.10

Table 6 Desired Total Fertility: Regression Results by Age and Marital Status

Variable		Age < 35	Age 35+	Marital Duration <10	Marital Duration 10+
Childhood family context					
TFR		0.225***	0.098**	0.001	0.083**
Number of siblings		0.011***	0.009*	0.015***	0.008**
Quantity-Quality: More siblings worse economic status		-0.042**	-0.027	-0.068***	-0.017
Quantity-Quality: Fewer siblings better schooling		-0.019	0.021	-0.029	0.006
Women Age (Omitted= age 30-34)					
Age 15-19				-0.07	
Age 20-24				-0.031	-0.129
Age 25-29				0.026	-0.105**
Age 35-39				-0.094	0.083***
Age 40-44				-0.261*	0.150***
Women Education (Omitted= No Education)					
Woman educational attainment: at least some primary		0.002	0	0.037	-0.004
Woman educational attainment: secondary or higher		-0.082***	-0.169***	0.012	-0.131***
Husband education (Omitted= No Education)					
Husband educational attainment: at least some primary		-0.02	-0.013	0.047	-0.026
Husband educational attainment: secondary or higher		-0.013	-0.041	0.077**	-0.039
Household characteristics					
Household wealth (Omitted= Lower)	Middle	-0.039*	-0.029	-0.028	-0.040**
	Upper	-0.051*	-0.137**	-0.055*	-0.132***
Upper Egypt		0.080**	0.161***	0.164***	0.150***
Urban area		-0.019	-0.083**	-0.038	-0.056*
Attitudes about child benefit and gender role					
Child support in old age		0.017*	0.025**	0.014	0.025*
Attitudes towards social change in gender roles		-0.023***	-0.020*	-0.031***	-0.016*
Constant		0.910***	1.397***	1.052***	1.302***
Number of women		*2135*	*1144*	*1532*	*1747*

*** p< 0.001 ** p< 0.05 * p<0.10

APPENDIX

Measurement of Key Explanatory Factors

Quantity-Quality tradeoff

Economic Stress

Dummy variable: 1 if the woman thinks that her family economic situation would have been worse if she had more siblings.
0 otherwise

Education attainment

Dummy variable: 1 if the woman thinks that hers and her sibling schooling would have been more/better if she had fewer siblings.
0 otherwise

Child Support in old-age

Count of "agree" with following five statements:

- Raising children requires a lot of money and effort, but you get it all back later in life from your children
- In old age, for most people it is best to live with their son, daughters or either
- In your old age, you expect to live with your sons, daughters or either
- In your old age, you expect your income to be from your sons or daughters
- Parents should have many children so that they will not be lonely when they are old

Attitudes towards social change in gender roles

Count of the number of social changes in Egypt that the respondent supports:

- Girls marrying at later ages
- Husband's doing more domestic chores
- More women occupying leadership positions in society
- Wives having more power in household decisions
- Boys and girls getting the same amount of schooling
- Boys and girls getting the same treatment

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